

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A semiconductor device comprising:

a pad metal layer having a perimeter area and a center area wherein said center area is formed to accommodate a probe;

a lower metal layer having a plurality of apertures below said center area of said pad metal layer, wherein said apertures are arranged into a plurality of rows each row comprising more than one of said apertures and a plurality of columns each column comprising more than one of said apertures;

an interlayer dielectric formed between said pad metal layer and said lower metal layer wherein said interlayer dielectric covers a portion of both the bottom and the sides of said pad metal layer;

a plurality of vias formed in said interlayer dielectric, wherein said plurality of vias electrically couple said pad metal layer and said lower metal layer, and wherein said plurality of vias form a ring arrangement that is located above and outside of the region occupied by said apertures in said lower metal layer and below an outermost perimeter area of said pad metal layer; and

an insulating dielectric layer that covers said perimeter area of said pad metal layer wherein said insulating dielectric layer covers a portion of both the top and the sides of said pad metal layer and extends laterally inside of the innermost perimeter of said plurality of vias.

2. (cancelled)

3. (previously presented) The semiconductor device as recited in Claim 1 wherein said vias are filled with tungsten.

4. (cancelled)

5. (cancelled)

6. (original) The semiconductor device as recited in Claim 1 wherein a probing process is performed on said center area of said pad metal layer.

7. (original) The semiconductor device as recited in Claim 1 wherein a wire-bonding process is performed on said center area of said pad metal layer.

8. (original) The semiconductor device as recited in Claim 1 wherein said semiconductor device is an integrated chip.

9.-15. (cancelled)

16. (withdrawn) A method of electrically coupling a pad metal layer and a lower metal layer in a semiconductor device, said method comprising:

forming a plurality of apertures in said lower metal layer, wherein said pad metal layer has a perimeter area and a center area, and wherein said apertures are located below said center area of said pad metal layer;

forming a plurality of vias in an interlayer dielectric between said pad metal layer and said lower metal layer, and wherein said vias are located below said perimeter area of said pad metal layer; and

filling said vias with a metal.

17. (withdrawn) The method as recited in Claim 16 wherein said metal is tungsten.

18. (withdrawn) The method as recited in Claim 16 wherein said vias are positioned in a ring arrangement below said pad metal layer.

19. (withdrawn) The method as recited in Claim 16 further comprising forming an insulating dielectric layer that covers said perimeter area of said pad metal layer.

20. (withdrawn) The method as recited in Claim 16 further comprising performing a probing process on said center area of said pad metal layer.

21. (withdrawn) The method as recited in Claim 16 further comprising performing a wire-bonding process on said center area of said pad metal layer.

22. (withdrawn) The method as recited in Claim 16 wherein said semiconductor device is an integrated circuit chip.